

This document gives pertinent information concerning the reissuance of the VPDES Permit listed below. This permit is being processed as a Minor, Municipal permit. The discharge results from the operation of a 0.0395 MGD wastewater treatment plant. The effluent limitations and special conditions contained in this permit will maintain the Water Quality Standards of 9 VAC 25-260-00 et seq.

1. Facility Name and Mailing Address: South Creek – Zion Crossroads  
1100 Harris Street  
Charlottesville, VA 22903  
  
Facility Location: 11445 James Madison Highway  
Gordonsville, VA 22942  
  
Facility Contact Name: Fred Kaspick / Operator  
Telephone Number: 434-531-9114  
  
SIC Code: 4952 WWTP  
  
County: Louisa
2. Permit Number: VA0088706  
Expiration Date: 12 December 2009  
  
Other VPDES Permits: Not Applicable  
Other Permits: Not Applicable  
E2/E3/E4 Status: Not Applicable
3. Owner Name: GW & FW Holdings, LLC  
South Creek Farms, LLC  
  
Respective Owner / Title: Frayser F. White / Manager  
F. F. White, II / Sole Member  
Telephone Number: 434-842-3000
4. Application Complete Date: 28 August 2009  
Permit Drafted By: Douglas Frasier  
Date Drafted: 4 November 2009  
Draft Permit Reviewed By: Alison Thompson  
Date Reviewed: 10 November 2009  
Public Comment Period: Start Date: 15 January 2010  
End Date: 16 February 2010
5. Receiving Waters Information: See **Attachment 1** for the Flow Frequency Determination.  
  
Receiving Stream Name: Central Branch, UT  
Drainage Area at Outfall: 0.16 square miles  
River Mile: 3.1  
Stream Basin: York River  
Subbasin: None  
Section: 3  
Stream Class: III  
Special Standards: None  
Waterbody ID: VAN-F01R  
7Q10 Low Flow: 0.0 MGD  
7Q10 High Flow: 0.0 MGD  
1Q10 Low Flow: 0.0 MGD  
1Q10 High Flow: 0.0 MGD  
Harmonic Mean Flow: 0.0 MGD  
30Q5 Flow: 0.0 MGD  
303(d) Listed: No  
30Q10 Flow: 0.0 MGD  
TMDL Approved: Yes – downstream  
Date TMDL Approved: 2 August 2006
6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:
 

<u>✓</u> State Water Control Law <u>✓</u> Clean Water Act <u>✓</u> VPDES Permit Regulation <u>✓</u> EPA NPDES Regulation	<u>        </u> EPA Guidelines <u>✓</u> Water Quality Standards <u>        </u> Other
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7. Licensed Operator Requirements: Class IV
8. Reliability Class: Class II

**9. Permit Characterization:**

<input checked="" type="checkbox"/> Private	<input checked="" type="checkbox"/> Effluent Limited	<input type="checkbox"/> Possible Interstate Effect
<input type="checkbox"/> Federal	<input checked="" type="checkbox"/> Water Quality Limited	<input type="checkbox"/> Compliance Schedule Required
<input type="checkbox"/> State	<input type="checkbox"/> Toxics Monitoring Program Required	<input type="checkbox"/> Interim Limits in Permit
<input type="checkbox"/> POTW	<input type="checkbox"/> Pretreatment Program Required	<input type="checkbox"/> Interim Limits in Other Document
<input checked="" type="checkbox"/> TMDL		

**10. Wastewater Sources and Treatment Description:**

This facility is a privately owned sewage treatment system which serves three (3) gas stations/convenience stores, two (2) fast food restaurants and a dialysis medical center. The treatment system has a design flow of 0.0395 MGD.

The facility consists of a lined LEMNA system which utilizes duckweed and diffused aeration to provide biological treatment and nitrification. The system includes an additional storage lagoon and an underdrain pump system to manage groundwater seepage under the liner. Final treatment includes post aeration and UV disinfection prior to discharge into an unnamed tributary to Central Branch.

The facility is staffed through in-house operators. Operators are on site daily during discharges and approximately 1-1½ hours weekly during periods of non-discharge. The facility typically discharges only twice per year (spring and fall) due to the storage capacity of the lagoon. The average duration of the discharge is 30 – 40 days.

No medical waste is received at the treatment system; all medical waste generated at the dialysis center is collected and transported weekly to an authorized medical waste disposal facility. Grease traps serving the gas stations/convenience stores and restaurants are pumped regularly by Valley Proteins.

See **Attachment 2** for a facility schematic/diagram.

TABLE 1 OUTFALL DESCRIPTION				
Outfall Number	Discharge Sources	Treatment	Design Flow	Outfall Latitude and Longitude
001	Domestic and Commercial Wastewater	See Item 10 above.	0.0395 MGD	37° 58' 22" N 78° 12' 37" W
See <b>Attachment 3</b> for topographic map.				

**11. Sludge Treatment and Disposal Methods:**

Due to the storage capacity of the treatment lagoon, there has been no need for sludge removal since it was placed into operation in 1997. Sludge depth is monitored on a regular basis and it is not expected to impact effluent concentrations until the sludge reaches a level of 1.5 feet.

The operator does not anticipate the need for any sludge removal within the next five (5) years. Sludge depths will continue to be monitored on an annual basis. If the sludge level begins to approach the above stated depth, the operator will submit a sludge removal and disposal plan for approval prior to implementation.

**12. Discharges, Intakes, Monitoring Stations, Other Items in Waterbody VAN-F01R:**

TABLE 2 DISCHARGES, INTAKES & MONITORING STATIONS		
Permit/ID Number	Description	Receiving Stream
VA0090743	Zion Crossroads Wastewater Treatment Plant	Camp Creek Lake
VA0091332	Louisa Generation Facility	Happy Creek, UT
8-WLR00.26	DEQ Ambient Monitoring Station	Wheeler Creek
VA0021105	Gordonsville Sewage Treatment Plant	South Anna River, UT
VA0087033	Dominion – Gordonsville Power Station	South Anna River

**13. Material Storage:** No chemicals are used or stored on site.

**14. Site Inspection:** Performed by DEQ-NRO Compliance staff on 24 July 2007 (see **Attachment 4**).

**15. Receiving Stream Water Quality and Water Quality Standards:**a. Ambient Water Quality Data

There is no DEQ monitoring data for the receiving stream. The nearest DEQ monitoring station, 8-WLR000.26, is located approximately 5.1 rivermiles downstream of the discharge; located on Wheeler Creek at the Route 640 bridge crossing.

Downstream impairments have been noted for Wheeler Creek for Recreation and Aquatic Life Uses. The Pamunkey River Basin Bacteria TMDL was approved by the Environmental Protection Agency (EPA) on 2 August 2006 with a modification completed in 22 June 2009. The Central Branch, UT, was not specifically included in the TMDL; however, all upstream point sources were included and given a Wasteload Allocation (WLA).

This facility received a WLA of  $6.9 \times 10^{10}$  cfu/year for *E. coli*.

A benthic TMDL for Wheeler Creek is due by 2020.

The receiving stream, UT to Central Branch, is a tributary to Central Branch which then flows into Camp Creek. Camp Creek flows through the Green Springs National Historic Landmark District.

b. Receiving Stream Water Quality Criteria

Part IX of 9 VAC 25-260(360-550) designates classes and special standards applicable to defined Virginia river basins and sections. The receiving stream Central Branch, UT is located within Section 3 of the York River Basin and classified as Class III water.

At all times, Class III waters must achieve Dissolved Oxygen (D.O.) of 4.0 mg/L or greater, a daily average D.O. of 5.0 mg/L or greater, a temperature that does not exceed 32° C and maintain a pH of 6.0 – 9.0 standard units (S.U.).

**Attachment 5** details other water quality criteria applicable to the receiving stream.

Ammonia:

Staff re-evaluated the effluent pH data used to establish the ammonia criteria during that last reissuance. The 90<sup>th</sup> percentile was determined to be 8.7 S.U. based on the 2004 – 2009 Discharge Monitoring Reports (DMRs). It is staff's best professional judgement that this value may be biased high due to the type of treatment system. Therefore, a default pH value of 8.0 S.U. and a temperature value of 25° C were used to calculate the ammonia water quality criteria for this reissuance.

**Metals Criteria:**

The Water Quality Criteria for some metals are dependent on the receiving stream's hardness (mg/L CaCO<sub>3</sub>). Since there is no hardness data for this facility, guidance suggests using a default hardness value of 50 mg/L CaCO<sub>3</sub> for streams east of the Blue Ridge. The hardness-dependent metals criteria are based on this in-stream value.

**Bacteria Criteria:**

The Virginia Water Quality Standards (9 VAC 25-260-170 B.) states sewage discharges shall be disinfected to achieve the following criteria:

*E. coli* bacteria per 100 mL of water shall not exceed the following:

	Geometric Mean <sup>1</sup>	Single Sample Maximum
Freshwater <i>E. coli</i> (N/100 mL)	126	235

<sup>1</sup>For two or more samples taken during any calendar month

**c. Receiving Stream Special Standards**

The State Water Control Board's Water Quality Standards, River Basin Section Tables (9 VAC 25-260-360, 370 and 380) designates the river basins, sections, classes and special standards for surface waters of the Commonwealth of Virginia. The receiving stream, Central Branch, UT, is located within Section 3 of the York River Basin. This section has not been designated with a special standard.

**d. Threatened or Endangered Species**

The Virginia DGIF Fish and Wildlife Information System Database was searched on 14 October 2009 for records to determine if there are threatened or endangered species in the vicinity of the discharge. Threatened and endangered species were identified within a 2 mile radius of the discharge. The limits proposed in this draft permit are protective of the Virginia Water Quality Standards and therefore protect the threatened and endangered species found near the discharge.

**16. Antidegradation (9 VAC 25-260-30):**

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The receiving stream has been classified as Tier 1 based on the fact that the critical 7Q10 and 1Q10 flows have been determined to be 0.0 MGD. Permit limits proposed have been established by determining wasteload allocations which will result in attaining and/or maintaining all water quality criteria which apply to the receiving stream, including narrative criteria. These wasteload allocations will provide for the protection and maintenance of all existing uses.

**17. Effluent Screening, Wasteload Allocation, and Effluent Limitation Development:**

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points are equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

Next, the appropriate Water Quality Standards (WQS) are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLA s) are calculated. In this case, since the critical flows 7Q10 and 1Q10 have been determined to be zero, the WLAs are equal to the WQS. The WLA values are then compared with available effluent data to determine the need for effluent limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. Effluent limitations are based on the most limiting WLA, the required sampling frequency and statistical characteristics of the effluent data.

a. Effluent Screening

Effluent data obtained from the permit application and Discharge Monitoring Reports (DMRs) has been reviewed and determined to be suitable for evaluation.

The following pollutant requires a wasteload allocation analysis : Ammonia as N.

b. Mixing Zones and Wasteload Allocations (WLAs)

Wasteload allocations (WLAs) are calculated for those parameters in the effluent with the reasonable potential to cause an exceedance of water quality criteria. The basic calculation for establishing a WLA is the steady state complete mix equation:

$$WLA = \frac{C_o [ Q_e + ( f ) ( Q_s ) ] - [ ( C_s ) ( f ) ( Q_s ) ]}{Q_e}$$

Where:	WLA	=	Wasteload allocation
	C <sub>o</sub>	=	In-stream water quality criteria
	Q <sub>e</sub>	=	Design flow
	Q <sub>s</sub>	=	Critical receiving stream flow (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; harmonic mean for carcinogen-human health criteria; 30Q10 for ammonia criteria; and 30Q5 for non-carcinogen human health criteria)
	f	=	Decimal fraction of critical flow
	C <sub>s</sub>	=	Mean background concentration of parameter in the receiving stream

The water segment receiving the discharge via Outfall 001 is considered to have a 7Q10 and 1Q10 of 0.0 MGD. As such, there is no mixing zone and the WLA is equal to the C<sub>o</sub>.

c. Effluent Limitations, Outfall 001 – Toxic Pollutants

9 VAC 25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits.

The VPDES Permit Regulation at 9 VAC 25-31-230.D. requires that monthly and weekly average limitations be imposed for continuous discharges from POTWs and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges.

## 1) Ammonia as N:

Upon evaluation of the effluent pH values as reported on the 2004 – 2009 DMRs, it was determined that the 90<sup>th</sup> percentile value to be 8.7 S.U. This elevated value could be attributed to the facility's treatment system. It was staff's best professional judgement to utilize the default value of 8.0 S.U., as per agency guidance. It was thought this would eliminate the potential bias.

As a result, a proposed limitation of 2.4 mg/L for ammonia was calculated. The previous reissuance established a limitation of 2.1 mg/L. Antibacksliding provisions do not allow relaxation of limitations; therefore, the current limitation of 2.1 mg/L will be carried forward with this reissuance.

See **Attachment 6** for the derivation of ammonia limitations.

## 2) Total Residual Chlorine:

Chlorine is not utilized for disinfection at this facility; therefore, no limitation is warranted.

## 3) Metals:

It is staff's best professional judgement that no limits are warranted given the sources of wastewater at this facility.

d. Effluent Limitations and Monitoring, Outfall 001 – Conventional and Non-Conventional Pollutants

No changes to Dissolved Oxygen (D.O.), carbonaceous-Biochemical Oxygen Demand-5 day (cBOD<sub>5</sub>), Total Suspended Solids (TSS) and Ammonia limitations are proposed.

Dissolved Oxygen and cBOD<sub>5</sub> limitations are based on the stream modeling conducted in August 1994 (**Attachment 7**). These limitations are set to ensure that the receiving stream D.O. does not decrease more than 0.2 mg/L to meet the requirements of the antidegradation policy.

pH limitations, as proposed, are more stringent than the water quality criteria. The maximum value of 8.0 S.U. will protect against ammonia toxicity and ensures protection of the water quality.

*E. coli* limitations are in accordance with the Water Quality Standards 9 VAC25-260-170.

e. Effluent Limitations and Monitoring Summary

The effluent limitations are presented in the following table. Limits were established for cBOD<sub>5</sub>, Total Suspended Solids, Ammonia, pH, Dissolved Oxygen and *E. coli*.

The limit for Total Suspended Solids is based on Best Professional Judgement.

The mass loading (kg/d), for monthly and weekly averages, were calculated by multiplying the concentration values (mg/L), with the flow values (in MGD) and a conversion factor of 3.785.

Sample Type and Frequency are in accordance with the recommendations in the VPDES Permit Manual.

The VPDES Permit Regulation at 9 VAC 25-31-30 and 40 CFR Part 133 require that the facility achieve at least 85% removal for cBOD<sub>5</sub> and TSS (or 65% for equivalent to secondary). This permit requires influent cBOD<sub>5</sub> and TSS monitoring on an annual basis to demonstrate 85% removal.

**18. Antibacksliding:**

All limits in this permit are at least as stringent as those previously established. Backsliding does not apply to this reissuance.

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PAGE 7 of 10**19. Effluent Limitations/Monitoring Requirements:**

Design flow is 0.0395 MGD.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS						MONITORING REQUIREMENTS	
		Monthly Average		Weekly Average		Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL		N/A		N/A	NL	1/D	Estimate
pH*	2,3	N/A		N/A		6.0 S.U.	8.0 S.U.	1/D	Grab
cBOD <sub>5</sub>	3,4	15 mg/L	2.2 kg/day	22 mg/L	3.3 kg/day	N/A	N/A	1/M	Grab
cBOD <sub>5</sub> – Influent	5	N/A		N/A		N/A	NL	1/Y	Grab
Total Suspended Solids (TSS)	2	30 mg/L	4.5 kg/day	45 mg/L	6.7 kg/day	N/A	N/A	1/M	Grab
Total Suspended Solids (TSS) – Influent	5	N/A		N/A		N/A	NL	1/Y	Grab
DO	3,4	N/A		N/A		5.0 mg/L	N/A	1/D	Grab
Ammonia, as N	3	2.1 mg/L		2.1 mg/L		N/A	N/A	1/M	Grab
<i>E. coli</i> (Geometric Mean)	3	126 n/100 mL		N/A		N/A	N/A	1/W	Grab

The basis for the limitations codes are:

1. Federal Effluent Requirements
2. Best Professional Judgement
3. Water Quality Standards
4. 1994 Stream Model – **Attachment 7**
5. EPA/VPDES Regulations

*MGD* = Million gallons per day.*N/A* = Not applicable.*NL* = No limit; monitor and report.*S.U.* = Standard units.*1/D* = Once every day.*1/W* = Once every week.*1/M* = Once every month.*1/Y* = Once every year.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

\*See Section 20.b.

**20. Other Permit Requirements:****a. Part I.B. of the permit contains quantification levels and compliance reporting instructions**

9 VAC 25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9 VAC 25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.

**b. Part I.C. of the permit details the requirements for a Schedule of Compliance**

The VPDES Permit Regulation, 9 VAC 25-31-250 allows the use of Compliance Schedules to allow facilities sufficient time for upgrades to meet newly established effluent limits. The permit contains a newly proposed maximum limitation for pH. It is staff's best professional judgement that a schedule of compliance is warranted to provide the permittee time to upgrade the facility. The permittee shall achieve compliance with the final maximum pH limitation as specified in Part I.A. of the VPDES permit as contained in Part I.C.

The permittee shall achieve compliance with the maximum pH limitation of 8.0 S.U. on or before 26 March 2011.

**21. Other Special Conditions:**

- a. 95% Capacity Reopener. The VPDES Permit Regulation at 9 VAC 25-31-200.B.2. requires all POTWs and PVOTWs develop and submit a plan of action to DEQ when the monthly average influent flow to their sewage treatment plant reaches 95% or more of the design capacity authorized in the permit for each month of any three consecutive month period. The facility is a PVOTW.
- b. Indirect Dischargers. Required by VPDES Permit Regulation, 9 VAC 25-31-280 B.9 for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.
- c. O&M Manual Requirement. Required by Code of Virginia §62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790; VPDES Permit Regulation, 9 VAC 25-31-190.E. On or before 26 June 2010, the permittee shall submit a revised Operations and Maintenance (O&M) Manual to the Department of Environmental Quality, Northern Regional Office (DEQ-NRO) for review. Future changes to the facility must be addressed by the submittal of a revised O&M Manual within 90 days of the changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.
- d. CTC, CTO Requirement. The Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790 requires that all treatment works treating wastewater obtain a Certificate to Construct prior to commencing construction and to obtain a Certificate to Operate prior to commencing operation of the treatment works.
- e. Licensed Operator Requirement. The Code of Virginia at §54.1-2300 et seq. and the VPDES Permit Regulation at 9 VAC 25-31-200 C, and Rules and Regulations for Waterworks and Wastewater Works Operators (18 VAC 160-20-10 et seq.) requires licensure of operators. This facility requires a Class IV operator.
- f. Reliability Class. The Sewage Collection and Treatment Regulations at 9 VAC 25-790 require sewage treatment works to achieve a certain level of reliability in order to protect water quality and public health consequences in the event of component or system failure. Reliability means a measure of the ability of the treatment works to perform its designated function without failure or interruption of service. The facility is required to meet a reliability Class of II.
- g. Water Quality Criteria Reopener. The VPDES Permit Regulation at 9 VAC 25-31-220 D. requires establishment of effluent limitations to ensure attainment/maintenance of receiving stream water quality criteria. Should effluent monitoring indicate the need for any water quality-based limitations, this permit may be modified or alternatively revoked and reissued to incorporate appropriate limitations.
- h. Sludge Reopener. The VPDES Permit Regulation at 9 VAC 25-31-200.C.4. requires all permits issued to treatment works treating domestic sewage (including sludge-only facilities) include a reopener clause allowing incorporation of any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the CWA. The facility includes a sewage treatment works.
- i. Sludge Use and Disposal. The VPDES Permit Regulation at 9 VAC 25-31-100.P., 220.B.2., and 420-720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. The facility includes a treatment works treating domestic sewage.



- j. Treatment Works Closure Plan. The State Water Control Law §62.1-44.15:1.1, makes it illegal for an owner to cease operation and fail to implement a closure plan when failure to implement the plan would result in harm to human health or the environment. This condition is used to notify the owner of the need for a closure plan where a facility is being replaced or is expected to close.
  - k. Lagoon Liner Integrity. The permittee shall submit a proposal to ascertain the liner integrity of the treatment lagoon. The proposal shall be submitted to DEQ-NRO on or before 26 March 2011 for review. The study shall be completed on or before 26 March 2012. If the results indicate that the liner has been compromised, the permittee shall submit a Corrective Action Plan on or before 26 June 2012 to DEQ-NRO for review.
  - l. TMDL Reopener. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL that may be developed and approved for the receiving stream.
22. Permit Section Part II. Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.

23. **Changes to the Permit from the Previously Issued Permit:**

- a. Special Conditions:
  - A Lagoon Liner Integrity study was included with this reissuance.
- b. Monitoring and Effluent Limitations:
  - The weekly average loading for cBOD<sub>5</sub> was changed from 3.4 kg/day to 3.3 kg/day due to a previous calculation error.
  - Influent cBOD<sub>5</sub> and TSS monitoring at once a year was included with this reissuance to demonstrate achieved removal rates.
- c. Other:
  - Change of ownership was requested during the comment period; completed concurrently with reissuance.

24. **Variances/Alternate Limits or Conditions:** Not Applicable

25. **Public Notice Information:**

First Public Notice Date: 14 January 2010                      Second Public Notice Date: 21 January 2010

Public Notice Information is required by 9 VAC 25-31-280 B. All pertinent information is on file and may be inspected and copied by contacting the: DEQ Northern Regional Office; 13901 Crown Court, Woodbridge, VA 22193; Telephone No. (703) 583-3873; Douglas.Frasier@deq.virginia.gov. See **Attachment 8** for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state (1) the reason why a hearing is requested; (2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and (3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may request an electronic copy of the draft permit and fact sheet or review the draft permit and application at the DEQ Northern Regional Office by appointment.

26. **303 (d) Listed Stream Segments and Total Max. Daily Loads (TMDL):**

The receiving stream, Central Branch, UT, is not listed on the current 303(d) list. Downstream impairments have been noted for Recreation and Aquatic Life Uses. A bacteria TMDL has been developed and approved by the EPA for the Pamunkey River Basin. This facility received a WLA and the proposed limitations for *E. coli* ensure compliance with that WLA. A downstream benthic TMDL is scheduled for 2020.

**27. Additional Comments:**

Previous Board Action(s): Not Applicable.

Staff Comments: This reissuance was delayed due to reassignment.

Public Comment: Several comments were received during the public comment period which ended on 16 February 2010. DEQ staff responded to all comments on 18 March 2010. There was no request for a Public Hearing.

In response, changes were made to original draft permit and Fact Sheet:

- The maximum pH limitation was reduced to 8.0 S.U.;
- The permittee is required to revise and submit the Operations and Maintenance Manual for DEQ review; and
- A Lagoon Liner Integrity special condition as added.

All public comments and subsequent DEQ responses are included in the permit file.

EPA Checklist: The checklist can be found in **Attachment 9**.

# Fact Sheet Attachments

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### South Creek – Zion Crossroads Wastewater Treatment Plant VA0088706

2010 Reissuance

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Attachment 5	Water Quality Criteria/Wasteload Allocation Analysis
Attachment 6	Ammonia Limitation Determination
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## MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY  
Office of Water Quality Assessments  
629 East Main Street P.O. Box 10009 Richmond, Virginia 23219

SUBJECT: Flow Frequency Determination  
Virginia Oil, Zion Crossroads - VA#0088706

TO: J.R. Pandey, VRO

FROM: Paul E. Herman, P.E., WQAP *Paul*

DATE: March 26, 1999

COPIES: Ron Gregory, Charles Martin, File

*DEVELOPMENT*

MAR 29 1999

TO: \_\_\_\_\_  
FILE: \_\_\_\_\_

The Virginia Oil - Zion Crossroads Facility discharges to an unnamed tributary of the Central Branch near Zion Crossroads, Virginia. Stream flow frequencies are required at this site for use by the permit writer in developing the VPDES permit.

The flow frequencies for the discharge receiving stream were determined by inspection of the USGS Zion Crossroads Quadrangle topographic map. The map depicts the receiving stream as an intermittent stream at the discharge point. The flow frequencies for intermittent streams are 0.0 cfs for the 1Q10, 7Q10, 30Q5, high flow 1Q10, high flow 7Q10, and harmonic mean. For modeling purposes, flow frequencies have been determined for the perennial Central Branch.

The VDEQ operated a continuous record gage on the Bunch Creek near Boswells Tavern, VA (#01671500) from 1949 to 1979. The gage was located 3.5 miles north of the discharge point, at the U.S. Route 15 bridge, in Louisa County, VA. The flow frequencies for the perennial point were determined using drainage area proportions and do not address any withdrawals, discharges, or springs that may lie upstream of the perennial point. The flow frequencies for the gage and the perennial point are presented below.

**Bunch Creek near Boswells Tavern, VA (#01671500):**

Drainage Area = 4.4 mi<sup>2</sup>

1Q10 = 0.0 cfs	High Flow 1Q10 = 0.47 cfs
7Q10 = 0.0 cfs	High Flow 7Q10 = 0.60 cfs
30Q5 = 0.0 cfs	HM = 0.0 cfs

**Central Branch at perennial point:**

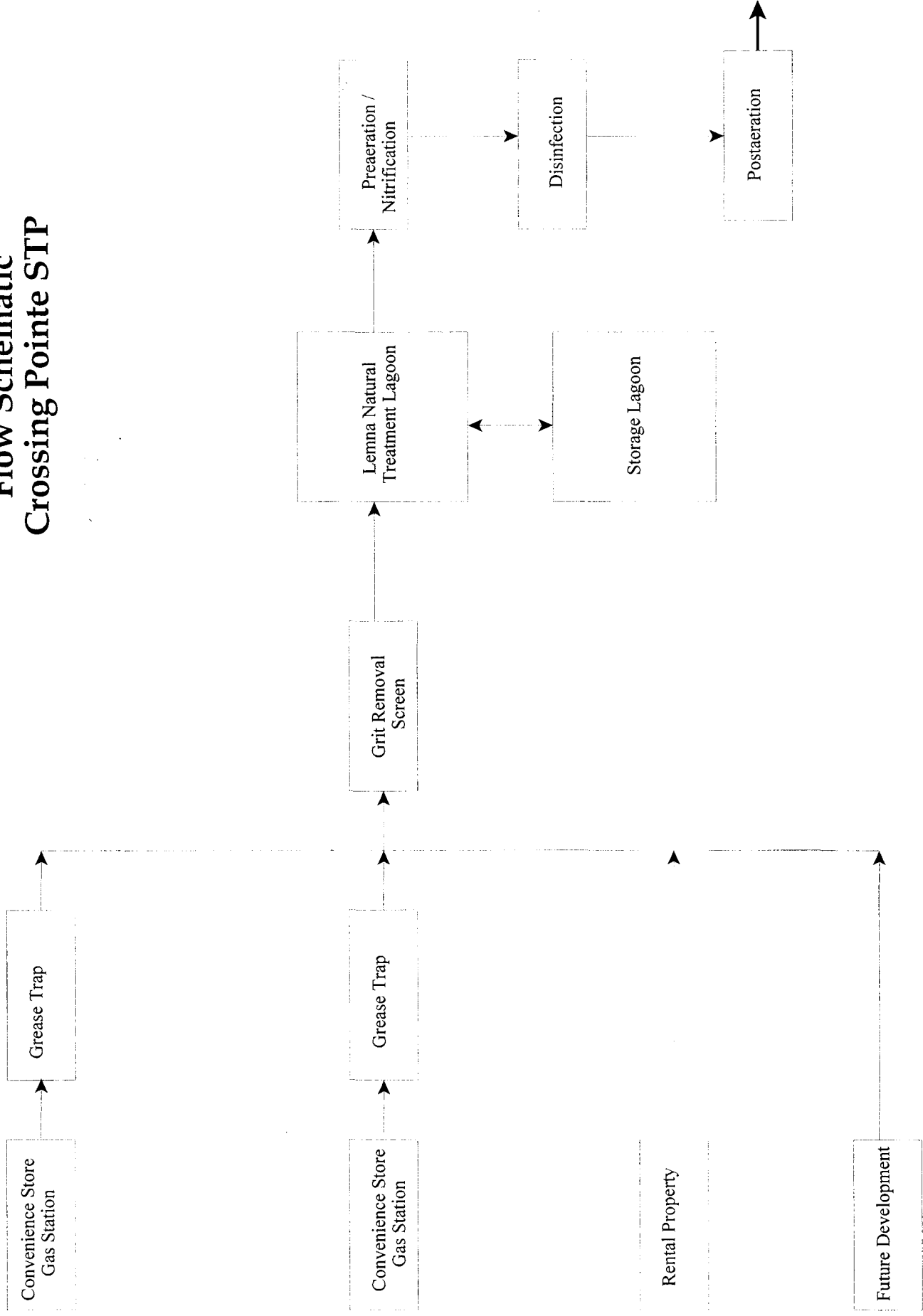
Drainage Area = 0.82 mi<sup>2</sup>

1Q10 = 0.0 cfs	High Flow 1Q10 = 0.09 cfs
7Q10 = 0.0 cfs	High Flow 7Q10 = 0.11 cfs
30Q5 = 0.0 cfs	HM = 0.0 cfs

The high flow months are December through May.

If you have any questions concerning this analysis, please let me know.

# Flow Schematic Crossing Pointe STP



78°14.000' W

78°13.000' W

78°12.000' W

WGS84 78°11.000' W

38°00.000' N

37°59.000' N

37°58.000' N

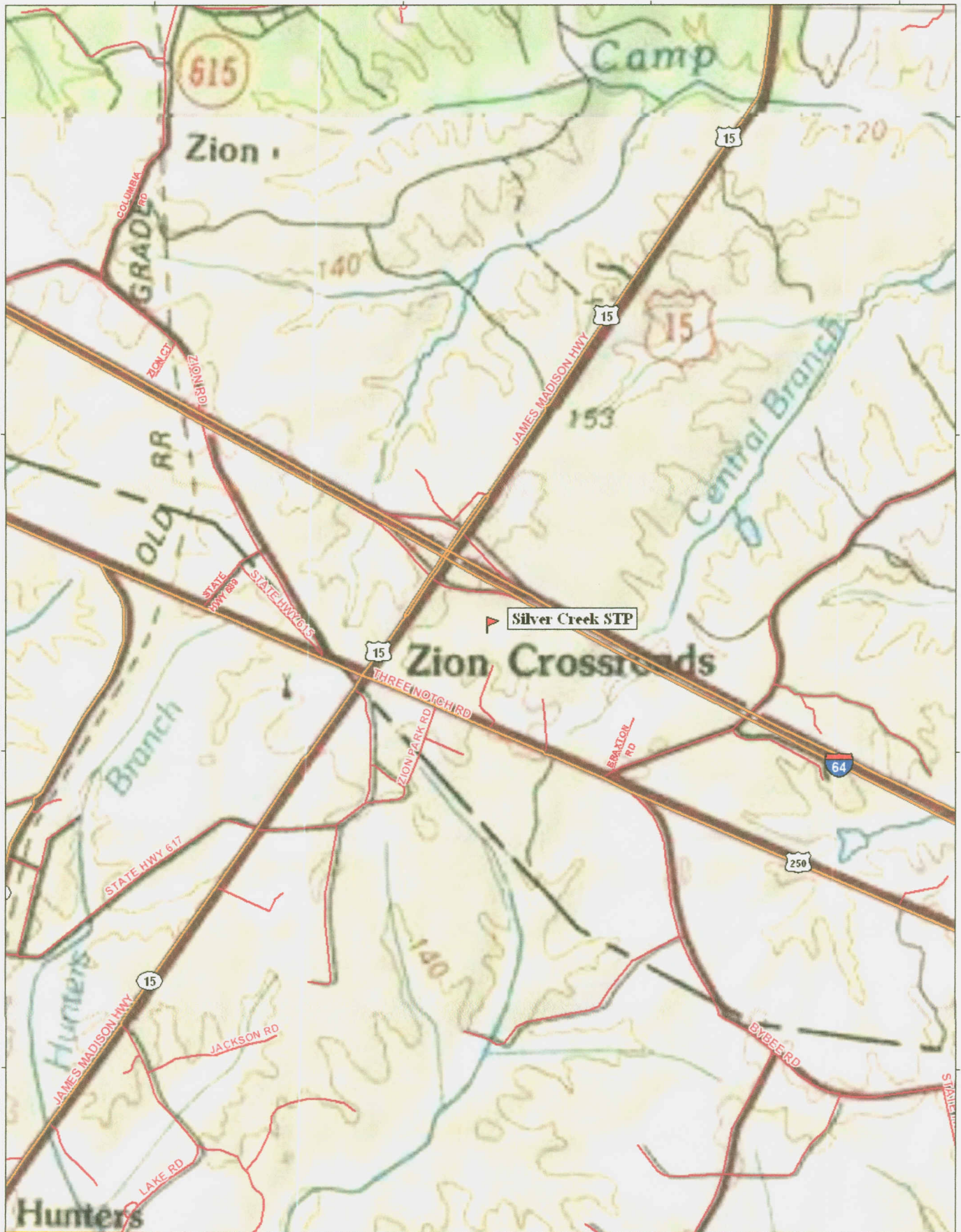
37°57.000' N

38°00.000' N

37°59.000' N

37°58.000' N

37°57.000' N



DEQ  
WASTEWATER FACILITY INSPECTION REPORT  
PREFACE

VPDES/State Certification No.	(RE) Issuance Date	Amendment Date	Expiration Date																								
<b>VA0088706</b>	<b>December 13, 2004</b>		<b>December 12, 2009</b>																								
Facility Name	Address		Telephone Number																								
<b>Virginia Oil – Zion Crossroads STP</b>	<b>11445 James Madison Highway Zion Crossroads, VA</b>		<b>434-531-9114</b>																								
Owner Name	Address		Telephone Number																								
<b>Virginia Oil Company</b>	<b>P.O. Box 7476 Charlottesville, VA. 22906</b>		<b>804-979-1380</b>																								
Responsible Official	Title		Telephone Number																								
<b>William Bush</b>	<b>CPA, Treasurer, &amp; Secretary</b>		<b>434-791-1380</b>																								
Responsible Operator	Operator Cert. Class/number		Telephone Number																								
<b>Fred Kaspick</b>	<b>Class III; 1911003062</b>		<b>434-531-9114</b>																								
TYPE OF FACILITY:																											
<table border="1" style="width: 100%;"> <tr> <th colspan="4">DOMESTIC</th> <th colspan="4">INDUSTRIAL</th> </tr> <tr> <td>Federal</td> <td></td> <td>Major</td> <td></td> <td>Major</td> <td></td> <td>Primary</td> <td></td> </tr> <tr> <td>Non-federal</td> <td><b>X</b></td> <td>Minor</td> <td><b>X</b></td> <td>Minor</td> <td></td> <td>Secondary</td> <td></td> </tr> </table>				DOMESTIC				INDUSTRIAL				Federal		Major		Major		Primary		Non-federal	<b>X</b>	Minor	<b>X</b>	Minor		Secondary	
DOMESTIC				INDUSTRIAL																							
Federal		Major		Major		Primary																					
Non-federal	<b>X</b>	Minor	<b>X</b>	Minor		Secondary																					
INFLUENT CHARACTERISTICS:				DESIGN:																							
		Flow		0.0395 MGD																							
		Population Served		Variable																							
		Connections Served		4																							
EFFLUENT LIMITS: Units in mg/L unless otherwise specified																											
Parameter	Min.	Avg.	Max.	Parameter	Min.	Avg.	Max.																				
<b>Flow (MGD)</b>		<b>NL</b>	<b>NA</b>	<b>pH (s.u.)</b>	<b>6.0</b>		<b>9.0</b>																				
<b>Total Suspended Solids</b>		<b>30</b>	<b>45</b>	<b>Dissolved Oxygen</b>	<b>5.0</b>																						
<b>Ammonia-N</b>		<b>2.1</b>	<b>2.1</b>	<b>CBOD5</b>		<b>15</b>	<b>22</b>																				
<b>E. coli n/100 ml</b>		<b>126</b>																									
		Receiving Stream		UT, Central Branch																							
		Basin		York River																							
		Discharge Point (LAT)		37° 58' 22"																							
		Discharge Point (LONG)		78° 12' 37"																							

**DEQ  
WASTEWATER FACILITY  
INSPECTION REPORT  
PART 1**

Inspection date: **July 24, 2007** Date form completed: **August 10, 2007**  
 Inspection by: **Sharon Mack** Inspection agency: **DEQ NRO**  
 Time spent: **25 hrs** Announced: **Yes**  
 Reviewed by: Scheduled: **Yes**  
 Present at inspection: **Fred Kaspick - operator**

## TYPE OF FACILITY:

**Domestic****Industrial**

☐ Federal ☐ Major  
☒ Nonfederal ☒ Minor

☐ Major ☐ Primary  
☐ Minor ☐ Secondary

## Type of inspection:

☒ Routine  
☐ Compliance/Assistance/Complaint  
☐ Reinspection

Date of last inspection: **May 4, 1999**  
 Agency: **DEQ VRO**

Population served: **Variable**Connections served: **4**Last month average: (Effluent) **Month/year: March 2007**

Flow:	<b>0.0374</b>	MGD	pH:	<b>7.87</b>	s.u.	DO	<b>5.6</b>	mg/L
CBOD5	<b>4.0</b>	mg/L	TSS	<b>5.0</b>	mg/L	Ammonia-N	<b>0.6</b>	mg/L
E. coli	<b>21.7</b>	n/ 100ml						

Quarter average : ( Effluent) **Not possible to calculate- it is generally 3-4 months between discharges.**

DATA VERIFIED IN PREFACE

☒ Updated☐ No changes

Has there been any new construction?

☐ Yes☒ No

If yes, were plans and specifications approved?

☐ Yes☐ No☒ NADEQ approval date: **NA**



**(A) PLANT OPERATION AND MAINTENANCE**

1. Class and number of licensed operators: I 0 II 0 III 1 IV 0 Trainee 0
2. Hours per day plant is manned: **Fred is generally onsite once weekly. The owner and maintenance employees visit more often, but don't generally record their visits in the operator log (owner will if he makes adjustments or such). Fred on site daily when discharging to keep the balance between the main pond and the surge pond balanced. Plant's preferred discharge rate is 37,000 gpd.**
3. Describe adequacy of staffing. [ ] Good [X] Average [ ] Poor
4. Does the plant have an established program for training personnel? [ ] Yes [X] No
5. Describe the adequacy of the training program. [ ] Good [X] Average [ ] Poor
6. Are preventive maintenance tasks scheduled? [X] Yes [ ] No
7. Describe the adequacy of maintenance. [X] Good [ ] Average [ ] Poor\*
8. Does the plant experience any organic/hydraulic overloading?  
If yes, identify cause and impact on plant: [ ] Yes [X] No
9. Any bypassing since last inspection? [ ] Yes [X] No
10. Is the standby electric generator operational? [ ] Yes [ ] No\* [X] NA
11. Is the STP alarm system operational? [ ] Yes [ ] No\* [X] NA
12. How often is the standby generator exercised? **NA**  
Power Transfer Switch? **NA**  
Alarm System? **NA**
13. When was the cross connection control device last tested on the potable water service? **NA**
14. Is sludge being disposed in accordance with the approved sludge disposal plan?  
[X] Yes [ ] No [ ] NA
15. Is septage received by the facility? [ ] Yes [X] No  
Is septage loading controlled? [ ] Yes [ ] No [X] NA  
Are records maintained? [ ] Yes [ ] No [X] NA
16. Overall appearance of facility: [X] Good [ ] Average [ ] Poor

Comments:

**4. Fred is a contracted operator, and takes classes on his own.**

**(B) PLANT RECORDS**

1. Which of the following records does the plant maintain?

Operational Logs for each unit process	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
Instrument maintenance and calibration	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
Mechanical equipment maintenance	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
Industrial waste contribution (Municipal Facilities)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> NA

2. What does the operational log contain?

<input checked="" type="checkbox"/> Visual observations	<input checked="" type="checkbox"/> Flow measurement
<input checked="" type="checkbox"/> Laboratory results	<input checked="" type="checkbox"/> Process adjustments
<input type="checkbox"/> Control calculations	<input type="checkbox"/> Other (specify)

Comments:

3. What do the mechanical equipment records contain?

<input checked="" type="checkbox"/> As built plans and specs	<input type="checkbox"/> Spare parts inventory
<input checked="" type="checkbox"/> Manufacturers instructions	<input checked="" type="checkbox"/> Equipment/parts suppliers
<input checked="" type="checkbox"/> Lubrication schedules	<input type="checkbox"/> Other (specify)

Comments:

4. What do the industrial waste contribution records contain? **NA**  
(Municipal Only)

<input type="checkbox"/> Waste characteristics	<input type="checkbox"/> Locations and discharge types
<input type="checkbox"/> Impact on plant	<input type="checkbox"/> Other (specify)

Comments:

5. Which of the following records are kept at the plant and available to personnel?

<input checked="" type="checkbox"/> Equipment maintenance records	<input checked="" type="checkbox"/> Operational Log
<input type="checkbox"/> Industrial contributor records	<input checked="" type="checkbox"/> Instrumentation records
<input checked="" type="checkbox"/> Sampling and testing records	

6. Records not normally available to plant personnel and their location: **NA**

7. Were the records reviewed during the inspection? ☒ Yes ☐ No

8. Are the records adequate and the O & M Manual current? ☒ Yes ☐ No

9. Are the records maintained for the required 3-year time period? ☒ Yes ☐ No

Comments:

**3. Spare parts are kept on site but there is no written inventory.**

**8. O&M manual was last updated in May 2005**

**(C) SAMPLING**

1. Do sampling locations appear to be capable of providing representative samples? ☒ Yes ☐ No\*
2. Do sample types correspond to those required by the VPDES permit? ☒ Yes ☐ No\*
3. Do sampling frequencies correspond to those required by the VPDES permit? ☒ Yes ☐ No\*
4. Are composite samples collected in proportion to flow? ☐ Yes ☐ No\* ☒ NA
5. Are composite samples refrigerated during collection? ☐ Yes ☐ No\* ☒ NA
6. Does plant maintain required records of sampling? ☒ Yes ☐ No\*
7. Does plant run operational control tests? ☒ Yes ☐ No

Comments:

**(D) TESTING**

1. Who performs the testing? ☒ Plant ☐ Central Lab ☒ Commercial Lab

Name:

**Plant - DO and pH**  
**Aqua-Air Laboratories – E. coli, CBOD5, TSS, Ammonia-N**

**If plant performs any testing, complete 2-4.**

2. What method is used for chlorine analysis? **NA**
3. Does plant appear to have sufficient equipment to perform required tests? ☒ Yes ☐ No\*
4. Does testing equipment appear to be clean and/or operable? ☐ Yes ☒ No\*

Comments:

4. **The pH meter was not operating correctly on the date of the inspection. Records showed that it had been calibrated during the last discharge event and unit was in control.**

**(E) FOR INDUSTRIAL FACILITIES WITH TECHNOLOGY BASED LIMITS ONLY**

1. Is the production process as described in the permit application? (If no, describe changes in comments)  
☐ Yes ☐ No ☒ NA
2. Do products and production rates correspond as provided in the permit application? (If no, list differences)  
☐ Yes ☐ No ☒ NA
3. Has the State been notified of the changes and their impact on plant effluent? Date:  
☐ Yes ☐ No\* ☒ NA

Comments:

**Problems identified at last inspection (May 4, 1999)**

Corrected

Not Corrected

1. What looked like a bar screen was sitting inside the control building. I saw no influent bar screen. If the unit in the building was the influent bar screen, repair it and replace it.

[ ]

[X]

**No bar screen was in place at the influent basin.**

**SUMMARY****Comments:**

- The facility is located at the intersection of Rt. 15 and I-64.
- STP serves the BP gas station and McDonalds, the Exxon gas station and Hardees, the Citgo gas station, and the Dialysis center. The large parking lot behind the BP station also serves as a truck stop.
- The Lemna treatment system consists of one large pond divided into 2 halves – an aerated half and an unaerated half that holds the duckweed.
- The pond was experiencing an algae bloom that competes w/ duckweed growth – does not appear to affect treatment.
- A significant amount of grease was observed floating in the holding/surge pond. Fred commented he had not seen a lot of grease entering the plant and that it may have been coating the sides of the pond and was washed into the water by recent rain.

**Recommendations for action:**

- The influent basin should be cleaned out and the grease disposed of properly. Determine if the restaurants do have grease management plans and, if so, the schedule for cleaning the grease traps.
- The bar screen should either be replaced, or the O&M manual amended to reflect that a bar screen is no longer part of the treatment process.
- The number for E. coli reported on the March 2007 DMR is the arithmetic mean of the analysis results reported to the facility by the laboratory. While this number was well below the permit limit, E. coli must be reported as a Geometric Mean.
- The area where the plant discharge channel meets the stream from the stormwater pond should be made accessible so the channel and junction can be observed and evaluated.

**UNIT PROCESS: Influent basin**

- This is a shallow basin with curved sides that the influent flows through before entering the treatment pond. It is not seen on the facility drawings or mentioned in the O&M Manual.
- There was considerable grease build up in the basin. Fred hoses it down occasionally, but it has not been cleaned out to his knowledge.
- Water flows through from influent pipe; enters a pipe to pond, which enters pond straight, turns downward, and discharges into the pond near bottom.
- Fred measures the water depth and level changes using a staff gage next to the pipe entering the pond.
- The O&M manual discusses a manual bar screen and daily maintenance requirements. However, there was not a bar screen in evidence. This was also noted during the technical inspection conducting in May 1999.

**UNIT PROCESS: Ponds/Lagoons - aerated**

1. Type: ☒ Aerated    ☐ Unaerated    ☐ Polishing
2. No. of cells: **3**    In operation: **3**
3. Color: ☒ Green    ☐ Brown    ☐ Light Brown    ☐ Grey    ☐ Other:
4. Odor: ☐ Septic\*    ☒ Earthy    ☐ None    ☐ Other:
5. System operated in: ☒ Series    ☐ Parallel    ☐ NA
6. If aerated, are lagoon contents mixed adequately? ☒ Yes    ☐ No\*    ☐ NA
7. If aerated, is aeration system operating properly? ☒ Yes    ☐ No\*    ☐ NA
8. Evidence of following problems:
- a. vegetation in lagoon or dikes    ☐ Yes\*    ☒ No
  - b. rodents burrowing on dikes    ☐ Yes\*    ☒ No
  - c. erosion    ☒ Yes\*    ☐ No
  - d. sludge bars    ☐ Yes\*    ☒ No
  - e. excessive foam    ☐ Yes\*    ☒ No
  - f. floating material    ☒ Yes\*    ☐ No
9. Fencing intact: ☒ Yes    ☐ No\*
10. Grass maintained properly: ☒ Yes    ☐ No
11. Level control valves working properly: ☒ Yes    ☐ No\*
12. Effluent discharge elevation: ☐ Top    ☐ Middle    ☐ Bottom    ☒ NA
13. Freeboard: **approx 6 ft.**
14. Appearance of effluent: ☒ Good    ☐ Fair    ☐ Poor
15. General condition: ☒ Good    ☐ Fair    ☐ Poor
16. Are monitoring wells present? ☐ Yes    ☒ No
- Are wells adequately protected from runoff? ☐ Yes    ☐ No\*    ☒ NA
- Are caps on and secured? ☐ Yes    ☐ No\*    ☒ NA

**UNIT PROCESS: Ponds/Lagoons – aerated (continued)**

Comments:

- **This page refers to the first half of the treatment pond. Air is supplied by two blowers that run alternately.**
- 2. This aerated side is divided into three cells by baffle curtains. The influent enters at one end of the pond, and meanders back and forth through openings at alternate ends of the baffle curtains to next cell.**
- 8c. For both sides of the pond – the edges are uneven with small eroded areas. These areas may have been caused by geese/ducks entering and exiting water at same spot over the years. One area may contain a burrow.**
- 8f. Floating material is algae and duckweed.**
- 12. The water passes between the aerated and unaerated (Lemna) sides through an opening in the middle of the final curtain.**

**UNIT PROCESS: Ponds/Lagoons - Lemna**

1. Type: ☐ Aerated ☒ Unaerated ☐ Polishing
2. No. of cells: **1** In operation: **1**
3. Color: ☒ Green ☐ Brown ☐ Light Brown ☐ Grey ☐ Other:
4. Odor: ☐ Septic\* ☐ Earthy ☒ None ☐ Other:
5. System operated in: ☐ Series ☐ Parallel ☒ NA
6. If aerated, are lagoon contents mixed adequately? ☐ Yes ☐ No\* ☒ NA
7. If aerated, is aeration system operating properly? ☐ Yes ☐ No\* ☒ NA
8. Evidence of following problems:
- a. vegetation in lagoon or dikes ☐ Yes\* ☒ No
  - b. rodents burrowing on dikes ☐ Yes\* ☒ No
  - c. erosion ☒ Yes\* ☐ No
  - d. sludge bars ☐ Yes\* ☒ No
  - e. excessive foam ☐ Yes\* ☒ No
  - f. floating material ☒ Yes\* ☐ No
9. Fencing intact: ☒ Yes ☐ No\*
10. Grass maintained properly: ☒ Yes ☐ No
11. Level control valves working properly: ☒ Yes ☐ No\*
12. Effluent discharge elevation: ☒ Top ☐ Middle ☐ Bottom
13. Freeboard: **approx. 6 ft.**
14. Appearance of effluent: ☒ Good ☐ Fair ☐ Poor
15. General condition: ☒ Good ☐ Fair ☐ Poor
16. Are monitoring wells present? ☐ Yes ☒ No
- Are wells adequately protected from runoff? ☐ Yes ☐ No\* ☒ NA
- Are caps on and secured? ☐ Yes ☐ No\* ☒ NA

Comments:

➤ **This page refers to the unaerated half of the treatment pond.****8 c. See comment previous page.****8 f. Floating material is algae and duckweed.****12. The discharge pipe is submerged – the discharge elevation is according to the previous inspection.**



## UNIT PROCESS: Nitrification tanks

- The facility has two tanks that are run in parallel.
- The tanks are aerated with fine diffusers, supplied by the same blowers that feed the aerated side of treatment pond.
- Foam was present, apparently produced by the aeration of the water. Fred said that it is sometimes up to top of tanks.
- There are 2 valves on discharge side of the tank- water can be sent either to the holding pond or to the UV system and outfall 001.
- For the majority of the time, water is sent to holding pond and recycled back through the system.

**UNIT PROCESS: Ponds/Lagoons –holding pond**

1. Type: ☐ Aerated ☒ Unaerated ☐ Polishing
2. No. of cells: **1** In operation: **1**
3. Color: ☒ Green ☐ Brown ☐ Light Brown ☐ Grey ☐ Other:
4. Odor: ☐ Septic\* ☐ Earthy ☒ None ☐ Other:
5. System operated in: ☐ Series ☐ Parallel ☒ NA
6. If aerated, are lagoon contents mixed adequately? ☐ Yes ☐ No\* ☒ NA
7. If aerated, is aeration system operating properly? ☐ Yes ☐ No\* ☒ NA
8. Evidence of following problems:
- a. vegetation in lagoon or dikes ☐ Yes\* ☒ No
  - b. rodents burrowing on dikes ☐ Yes\* ☒ No
  - c. erosion ☐ Yes\* ☒ No
  - d. sludge bars ☐ Yes\* ☒ No
  - e. excessive foam ☐ Yes\* ☒ No
  - f. floating material ☒ Yes\* ☐ No
9. Fencing intact: ☒ Yes ☐ No\*
10. Grass maintained properly: ☒ Yes ☐ No
11. Level control valves working properly: ☒ Yes ☐ No\*
12. Effluent discharge elevation: ☐ Top ☒ Middle ☐ Bottom
13. Freeboard: **6 ft.**
14. Appearance of effluent: **See comments** ☐ Good ☐ Fair ☐ Poor
15. General condition: ☒ Good ☐ Fair ☐ Poor
16. Are monitoring wells present? ☐ Yes ☒ No
- Are wells adequately protected from runoff? ☐ Yes ☐ No\* ☒ NA
- Are caps on and secured? ☐ Yes ☐ No\* ☒ NA

Comments:

**8f. A lot of grease was floating on the water surface.**

**14. The water in this pond is pumped back into the aerated side of the Lemna pond. The pump is float activated and is kept in auto; levels are set to keep the two ponds in balance. The pump was on while I was on site and the pipe that conveys water from this pond to the Lemna pond was leaking.**

**UNIT PROCESS: Ultraviolet (UV) Disinfection**

- |  |   |                               |  |
|--|---|-------------------------------|--|
| 1. Number of UV lamps/assemblies: <b>3 racks, 2 bulbs each rack</b>                        | In operation:                           | <b>none- no discharge</b>     |  |
| 2. Type of UV system and design dosage:  | <b>Trojan 3075</b>                      |                               |  |
| 3. Proper flow distribution between units:   | <input type="checkbox"/> Yes            | <input type="checkbox"/> No*  | <input checked="" type="checkbox"/> NA |
| 4. Method of UV intensity monitoring:  | <b>intensity meters</b>                 |                               |  |
| 5. Adequate ventilation of ballast control boxes:  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No*  | <input type="checkbox"/> NA            |
| 6. Indication of on/off status of all lamps provided:                                      | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No*  |  |
| 7. Lamp assemblies easily removed for maintenance: <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No*            |                               |  |
| 8. Records of lamp operating hours and replacement:  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No*  |  |
| 9. Routine cleaning system provided:   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No*  |  |
| Operate properly:  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No*  |  |
| Frequency of routine cleaning:   | <b>As needed – see comments</b>         |                               |  |
| 10. Lamp energy control system operate properly:   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No*  |  |
| 11. Date of last system overhaul:  | <b>See comment for #9 below</b>         |                               |  |
| a. UV unit completely drained  | <input type="checkbox"/> Yes            | <input type="checkbox"/> No*  |  |
| b. all surfaces cleaned  | <input type="checkbox"/> Yes            | <input type="checkbox"/> No*  |  |
| c. UV transmissibility checked   | <input type="checkbox"/> Yes            | <input type="checkbox"/> No*  |  |
| d. output of selected lamps checked  | <input type="checkbox"/> Yes            | <input type="checkbox"/> No*  |  |
| e. output of tested lamps  |   |                               |  |
| f. total operating hours, oldest lamp/assembly   |   |                               |  |
| g. number of spare lamps and ballasts available:   | lamps:                                  | ballasts:                     |  |
| 12. UV protective eyeglasses provided:   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No*  |  |
| 13. General condition: <b>See Comments</b>   | <input type="checkbox"/> Good           | <input type="checkbox"/> Fair | <input type="checkbox"/> Poor          |

Comments:

**9. System is operated only when there is a discharge to the environment, approximately every 3 months. Bulbs are cleaned as needed, determined by visual inspection, test results, and UV intensity meter readings. All bulbs were changed Spring 2007. Intensity meters used to determine if bulbs dirty or not.**

**13. We did not go down to inspect system because of a dead fox and resulting funky smell in the hut.**

**UNIT PROCESS: Post Aeration**

1. Number of units: **1** In operation: **1**
2. Proper flow distribution between units: ☐ Yes ☐ No\* ☒ NA
3. Evidence of following problems: **No Discharge during inspection.**
- |                                 |                               |   |
|---------------------------------|-------------------------------|---|
| a. dead spots                   | <input type="checkbox"/> Yes* | <input type="checkbox"/> No                             |
| b. excessive foam               | <input type="checkbox"/> Yes* | <input type="checkbox"/> No                             |
| c. poor aeration                | <input type="checkbox"/> Yes* | <input type="checkbox"/> No                             |
| d. mechanical equipment failure | <input type="checkbox"/> Yes* | <input type="checkbox"/> No <input type="checkbox"/> NA |
4. How is the aerator controlled? ☐ Time clock ☐ Manual ☒ Continuous ☐ Other\*  
☐ NA
5. What is the current operating schedule? **Plant discharges approx. once every 3 months.**
6. Step weirs level: ☒ Yes ☐ No ☐ NA
7. Effluent D.O. level: **NA**
8. General condition: ☒ Good ☐ Fair ☐ Poor

Comments:

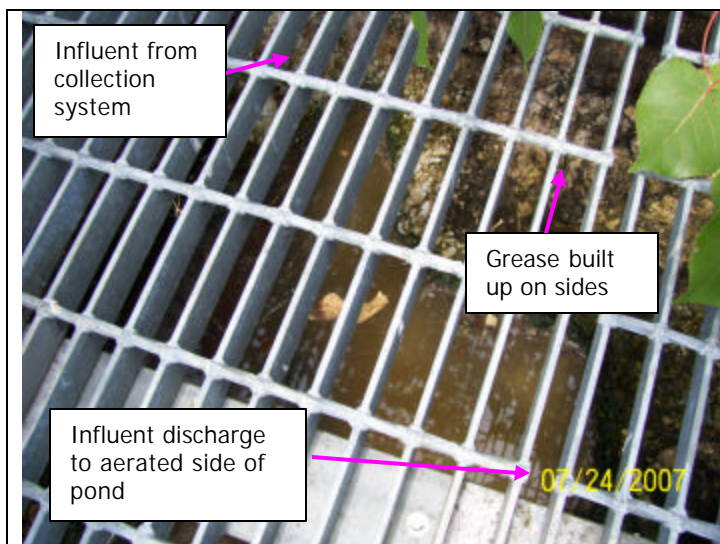
**1. Step aeration**

**UNIT PROCESS: Effluent/Plant Outfall**

1. Type Outfall                    ☒ Shore based                    ☐ Submerged
2. Type if shore based:    ☒ Wingwall                    ☐ Headwall                    ☐ Rip Rap
3. Flapper valve:                    ☐ Yes                    ☒ No                    ☐ NA
4. Erosion of bank:                    ☐ Yes                    ☒ No                    ☐ NA
5. Effluent plume visible?    ☐ Yes\*                    ☒ No                    **No Discharge**
6. Condition of outfall and supporting structures:    ☐ Good                    ☐ Fair                    ☐ Poor\*
7. Final effluent, evidence of following problems:    **NA**
  - a. oil sheen                    ☐ Yes\*                    ☐ No
  - b. grease                    ☐ Yes\*                    ☐ No
  - c. sludge bar                    ☐ Yes\*                    ☐ No
  - d. turbid effluent                    ☐ Yes\*                    ☐ No
  - e. visible foam                    ☐ Yes\*                    ☐ No
  - f. unusual color                    ☐ Yes\*                    ☐ No

Comments:

2. **Water from bottom of step aeration structure flows into a rock lined channel that joins the stream below the property's storm water runoff pond, then flows into Central Branch.**
6. **The area at the bottom of the step aeration structure was overgrown and the rock channel not easily**



1) Influent basin.



2) Water level measurement staff at pond influent.



3) Overview of pond showing aerated and Lemna sides.



4) Shoreline of Lemna pond.



5) Eroded area on pond bank.

Facility name: Virginia Oil- Zion Crossroads STP  
 VPDES Permit No. VA0088706  
 Site Inspection Date: July 24, 2007  
 Photos & Layout by: Sharon Mack





7) Eroded area and possible burrow in pond bank.

8) Unaerated side of Lemna pond.



9) Nitrification tanks.

10) UV system.



11) Flow measurement and sample site.

12) Step aeration.





13) Receiving stream.



14) Stormwater holding pond for the property.



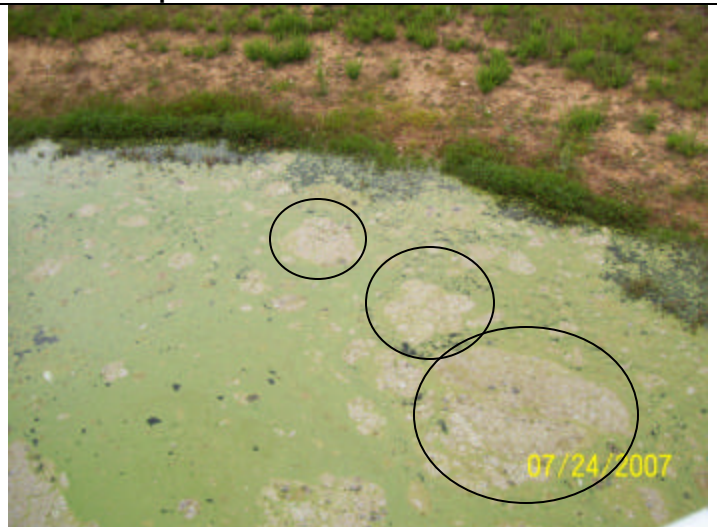
15) Holding/surge pond.



16) Controls for pump from surge pond back to Lemna pond.



17) Leak from pipe carrying water from surge pond to aerated pond.



18) Grease in surge pond.



# FRESHWATER WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: **South Creek - Zion Crossroads**

Permit No.: **VA0088706**

Receiving Stream: **Central Branch, UT**

Version: OWP Guidance Memo 00-2011 (8/24/00)

## Stream Information

Mean Hardness (as CaCO3) =	0 mg/L
90% Temperature (Annual) =	0 deg C
90% Temperature (Wet season) =	0 deg C
90% Maximum pH =	0 SU
10% Maximum pH =	0 SU
Tier Designation (1 or 2) =	1
Public Water Supply (PWS) Y/N? =	n
Trout Present Y/N? =	n
Early Life Stages Present Y/N? =	y

## Stream Flows

1Q10 (Annual) =	0 MGD
7Q10 (Annual) =	0 MGD
30Q10 (Annual) =	0 MGD
1Q10 (Wet season) =	0 MGD
30Q10 (Wet season) =	0 MGD
30Q5 =	0 MGD
Harmonic Mean =	0 MGD

## Mixing Information

Annual - 1Q10 Mix =	100 %
- 7Q10 Mix =	100 %
- 30Q10 Mix =	100 %
Wet Season - 1Q10 Mix =	100 %
- 30Q10 Mix =	100 %

## Effluent Information

Mean Hardness (as CaCO3) =	50 mg/L
90% Temp (Annual) =	25 deg C
90% Temp (Wet season) =	deg C
90% Maximum pH =	8 SU
10% Maximum pH =	SU
Discharge Flow =	0.0395 MGD

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenaphthene	5	--	--	na	9.9E+02	--	--	na	9.9E+02	--	--	--	--	--	--	--	--	--	--	na	9.9E+02
Acrolein	0	--	--	na	9.3E+00	--	--	na	9.3E+00	--	--	--	--	--	--	--	--	--	--	na	9.3E+00
Acrylonitrile <sup>C</sup>	0	--	--	na	2.5E+00	--	--	na	2.5E+00	--	--	--	--	--	--	--	--	--	--	na	2.5E+00
Aldrin <sup>C</sup>	0	3.0E+00	--	na	5.0E-04	3.0E+00	--	na	5.0E-04	--	--	--	--	--	--	--	--	3.0E+00	--	na	5.0E-04
Ammonia-N (mg/l) (Yearly)	0	8.41E+00	1.24E+00	na	--	8.4E+00	1.2E+00	na	--	--	--	--	--	--	--	--	--	8.4E+00	1.2E+00	na	--
Ammonia-N (mg/l) (High Flow)	0	8.41E+00	2.43E+00	na	--	8.4E+00	2.4E+00	na	--	--	--	--	--	--	--	--	--	8.4E+00	2.4E+00	na	--
Anthracene	0	--	--	na	4.0E+04	--	--	na	4.0E+04	--	--	--	--	--	--	--	--	--	--	na	4.0E+04
Antimony	0	--	--	na	6.4E+02	--	--	na	6.4E+02	--	--	--	--	--	--	--	--	--	--	na	6.4E+02
Arsenic	0	3.4E+02	1.5E+02	na	--	3.4E+02	1.5E+02	na	--	--	--	--	--	--	--	--	--	3.4E+02	1.5E+02	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Benzene <sup>C</sup>	0	--	--	na	5.1E+02	--	--	na	5.1E+02	--	--	--	--	--	--	--	--	--	--	na	5.1E+02
Benzidine <sup>C</sup>	0	--	--	na	2.0E-03	--	--	na	2.0E-03	--	--	--	--	--	--	--	--	--	--	na	2.0E-03
Benzo (a) anthracene <sup>C</sup>	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (b) fluoranthene <sup>C</sup>	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (k) fluoranthene <sup>C</sup>	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (a) pyrene <sup>C</sup>	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Bis(2-Chloroethyl) Ether <sup>C</sup>	0	--	--	na	5.3E+00	--	--	na	5.3E+00	--	--	--	--	--	--	--	--	--	--	na	5.3E+00
Bis(2-Chloroisopropyl) Ether	0	--	--	na	6.5E+04	--	--	na	6.5E+04	--	--	--	--	--	--	--	--	--	--	na	6.5E+04
Bis 2-Ethylhexyl Phthalate <sup>C</sup>	0	--	--	na	2.2E+01	--	--	na	2.2E+01	--	--	--	--	--	--	--	--	--	--	na	2.2E+01
Bromoform <sup>C</sup>	0	--	--	na	1.4E+03	--	--	na	1.4E+03	--	--	--	--	--	--	--	--	--	--	na	1.4E+03
Butylbenzylphthalate	0	--	--	na	1.9E+03	--	--	na	1.9E+03	--	--	--	--	--	--	--	--	--	--	na	1.9E+03
Cadmium	0	1.8E+00	6.6E-01	na	--	1.8E+00	6.6E-01	na	--	--	--	--	--	--	--	--	--	1.8E+00	6.6E-01	na	--
Carbon Tetrachloride <sup>C</sup>	0	--	--	na	1.6E+01	--	--	na	1.6E+01	--	--	--	--	--	--	--	--	--	--	na	1.6E+01
Chlordane <sup>C</sup>	0	2.4E+00	4.3E-03	na	8.1E-03	2.4E+00	4.3E-03	na	8.1E-03	--	--	--	--	--	--	--	--	2.4E+00	4.3E-03	na	8.1E-03
Chloride	0	8.6E+05	2.3E+05	na	--	8.6E+05	2.3E+05	na	--	--	--	--	--	--	--	--	--	8.6E+05	2.3E+05	na	--
TRC	0	1.9E+01	1.1E+01	na	--	1.9E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.9E+01	1.1E+01	na	--
Chlorobenzene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane <sup>C</sup>	0	--	--	na	1.3E+02	--	--	na	1.3E+02	--	--	--	--	--	--	--	--	--	--	na	1.3E+02
Chloroform	0	--	--	na	1.1E+04	--	--	na	1.1E+04	--	--	--	--	--	--	--	--	--	--	na	1.1E+04
2-Chloronaphthalene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03
2-Chlorophenol	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	--	--	na	1.5E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	8.3E-02	4.1E-02	na	--	--	--	--	--	--	--	--	--	8.3E-02	4.1E-02	na	--
Chromium III	0	3.2E+02	4.2E+01	na	--	3.2E+02	4.2E+01	na	--	--	--	--	--	--	--	--	--	3.2E+02	4.2E+01	na	--
Chromium VI	0	1.6E+01	1.1E+01	na	--	1.6E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.6E+01	1.1E+01	na	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Chrysene <sup>C</sup>	0	--	--	na	1.8E-02	--	--	na	1.8E-02	--	--	--	--	--	--	--	--	--	--	na	1.8E-02
Copper	0	7.0E+00	5.0E+00	na	--	7.0E+00	5.0E+00	na	--	--	--	--	--	--	--	--	--	7.0E+00	5.0E+00	na	--
Cyanide, Free	0	2.2E+01	5.2E+00	na	1.6E+04	2.2E+01	5.2E+00	na	1.6E+04	--	--	--	--	--	--	--	--	2.2E+01	5.2E+00	na	1.6E+04
DDD <sup>C</sup>	0	--	--	na	3.1E-03	--	--	na	3.1E-03	--	--	--	--	--	--	--	--	--	--	na	3.1E-03
DDE <sup>C</sup>	0	--	--	na	2.2E-03	--	--	na	2.2E-03	--	--	--	--	--	--	--	--	--	--	na	2.2E-03
DDT <sup>C</sup>	0	1.1E+00	1.0E-03	na	2.2E-03	1.1E+00	1.0E-03	na	2.2E-03	--	--	--	--	--	--	--	--	1.1E+00	1.0E-03	na	2.2E-03
Demeton	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Diazinon	0	1.7E-01	1.7E-01	na	--	1.7E-01	1.7E-01	na	--	--	--	--	--	--	--	--	--	1.7E-01	1.7E-01	na	--
Dibenz(a,h)anthracene <sup>C</sup>	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
1,2-Dichlorobenzene	0	--	--	na	1.3E+03	--	--	na	1.3E+03	--	--	--	--	--	--	--	--	--	--	na	1.3E+03
1,3-Dichlorobenzene	0	--	--	na	9.6E+02	--	--	na	9.6E+02	--	--	--	--	--	--	--	--	--	--	na	9.6E+02
1,4-Dichlorobenzene	0	--	--	na	1.9E+02	--	--	na	1.9E+02	--	--	--	--	--	--	--	--	--	--	na	1.9E+02
3,3-Dichlorobenzidine <sup>C</sup>	0	--	--	na	2.8E-01	--	--	na	2.8E-01	--	--	--	--	--	--	--	--	--	--	na	2.8E-01
Dichlorobromomethane <sup>C</sup>	0	--	--	na	1.7E+02	--	--	na	1.7E+02	--	--	--	--	--	--	--	--	--	--	na	1.7E+02
1,2-Dichloroethane <sup>C</sup>	0	--	--	na	3.7E+02	--	--	na	3.7E+02	--	--	--	--	--	--	--	--	--	--	na	3.7E+02
1,1-Dichloroethylene	0	--	--	na	7.1E+03	--	--	na	7.1E+03	--	--	--	--	--	--	--	--	--	--	na	7.1E+03
1,2-trans-dichloroethylene	0	--	--	na	1.0E+04	--	--	na	1.0E+04	--	--	--	--	--	--	--	--	--	--	na	1.0E+04
2,4-Dichlorophenol	0	--	--	na	2.9E+02	--	--	na	2.9E+02	--	--	--	--	--	--	--	--	--	--	na	2.9E+02
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,2-Dichloropropane <sup>C</sup>	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	--	--	na	1.5E+02
1,3-Dichloropropene <sup>C</sup>	0	--	--	na	2.1E+02	--	--	na	2.1E+02	--	--	--	--	--	--	--	--	--	--	na	2.1E+02
Dieldrin <sup>C</sup>	0	2.4E-01	5.6E-02	na	5.4E-04	2.4E-01	5.6E-02	na	5.4E-04	--	--	--	--	--	--	--	--	2.4E-01	5.6E-02	na	5.4E-04
Diethyl Phthalate	0	--	--	na	4.4E+04	--	--	na	4.4E+04	--	--	--	--	--	--	--	--	--	--	na	4.4E+04
2,4-Dimethylphenol	0	--	--	na	8.5E+02	--	--	na	8.5E+02	--	--	--	--	--	--	--	--	--	--	na	8.5E+02
Dimethyl Phthalate	0	--	--	na	1.1E+06	--	--	na	1.1E+06	--	--	--	--	--	--	--	--	--	--	na	1.1E+06
Di-n-Butyl Phthalate	0	--	--	na	4.5E+03	--	--	na	4.5E+03	--	--	--	--	--	--	--	--	--	--	na	4.5E+03
2,4 Dinitrophenol	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
2-Methyl-4,6-Dinitrophenol	0	--	--	na	2.8E+02	--	--	na	2.8E+02	--	--	--	--	--	--	--	--	--	--	na	2.8E+02
2,4-Dinitrotoluene <sup>C</sup>	0	--	--	na	3.4E+01	--	--	na	3.4E+01	--	--	--	--	--	--	--	--	--	--	na	3.4E+01
Dioxin 2,3,7,8- tetrachlorodibenzo-p-dioxin	0	--	--	na	5.1E-08	--	--	na	5.1E-08	--	--	--	--	--	--	--	--	--	--	na	5.1E-08
1,2-Diphenylhydrazine <sup>C</sup>	0	--	--	na	2.0E+00	--	--	na	2.0E+00	--	--	--	--	--	--	--	--	--	--	na	2.0E+00
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	8.9E+01
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	8.9E+01
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	2.2E-01	5.6E-02	--	--	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	--	--
Endosulfan Sulfate	0	--	--	na	8.9E+01	--	--	na	8.9E+01	--	--	--	--	--	--	--	--	--	--	na	8.9E+01
Endrin	0	8.6E-02	3.6E-02	na	6.0E-02	8.6E-02	3.6E-02	na	6.0E-02	--	--	--	--	--	--	--	--	8.6E-02	3.6E-02	na	6.0E-02
Endrin Aldehyde	0	--	--	na	3.0E-01	--	--	na	3.0E-01	--	--	--	--	--	--	--	--	--	--	na	3.0E-01

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		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.1E+03	--	--	na	2.1E+03	--	--	--	--	--	--	--	--	--	--	na	2.1E+03
Fluoranthene	0	--	--	na	1.4E+02	--	--	na	1.4E+02	--	--	--	--	--	--	--	--	--	--	na	1.4E+02
Fluorene	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	1.0E-02	na	--	--	--	--	--	--	--	--	--	--	1.0E-02	na	--
Heptachlor <sup>C</sup>	0	5.2E-01	3.8E-03	na	7.9E-04	5.2E-01	3.8E-03	na	7.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	7.9E-04
Heptachlor Epoxide <sup>C</sup>	0	5.2E-01	3.8E-03	na	3.9E-04	5.2E-01	3.8E-03	na	3.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	3.9E-04
Hexachlorobenzene <sup>C</sup>	0	--	--	na	2.9E-03	--	--	na	2.9E-03	--	--	--	--	--	--	--	--	--	--	na	2.9E-03
Hexachlorobutadiene <sup>C</sup>	0	--	--	na	1.8E+02	--	--	na	1.8E+02	--	--	--	--	--	--	--	--	--	--	na	1.8E+02
Hexachlorocyclohexane																					
Alpha-BHC <sup>C</sup>	0	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	--	--	--	--	--	--	--	--	na	4.9E-02
Hexachlorocyclohexane																					
Beta-BHC <sup>C</sup>	0	--	--	na	1.7E-01	--	--	na	1.7E-01	--	--	--	--	--	--	--	--	--	--	na	1.7E-01
Hexachlorocyclohexane																					
Gamma-BHC <sup>C</sup> (Lindane)	0	9.5E-01	na	na	1.8E+00	9.5E-01	--	na	1.8E+00	--	--	--	--	--	--	--	--	9.5E-01	--	na	1.8E+00
Hexachlorocyclopentadiene	0	--	--	na	1.1E+03	--	--	na	1.1E+03	--	--	--	--	--	--	--	--	--	--	na	1.1E+03
Hexachloroethane <sup>C</sup>	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	--	--	na	3.3E+01
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	2.0E+00	na	--	--	--	--	--	--	--	--	--	--	2.0E+00	na	--
Indeno (1,2,3-cd) pyrene <sup>C</sup>	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Iron	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Isophorone <sup>C</sup>	0	--	--	na	9.6E+03	--	--	na	9.6E+03	--	--	--	--	--	--	--	--	--	--	na	9.6E+03
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Lead	0	4.9E+01	5.6E+00	na	--	4.9E+01	5.6E+00	na	--	--	--	--	--	--	--	--	--	4.9E+01	5.6E+00	na	--
Malathion	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	--	--	1.4E+00	7.7E-01	--	--	--	--	--	--	--	--	--	--	1.4E+00	7.7E-01	--	--
Methyl Bromide	0	--	--	na	1.5E+03	--	--	na	1.5E+03	--	--	--	--	--	--	--	--	--	--	na	1.5E+03
Methylene Chloride <sup>C</sup>	0	--	--	na	5.9E+03	--	--	na	5.9E+03	--	--	--	--	--	--	--	--	--	--	na	5.9E+03
Methoxychlor	0	--	3.0E-02	na	--	--	3.0E-02	na	--	--	--	--	--	--	--	--	--	--	3.0E-02	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Nickel	0	1.0E+02	1.1E+01	na	4.6E+03	1.0E+02	1.1E+01	na	4.6E+03	--	--	--	--	--	--	--	--	1.0E+02	1.1E+01	na	4.6E+03
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nitrobenzene	0	--	--	na	6.9E+02	--	--	na	6.9E+02	--	--	--	--	--	--	--	--	--	--	na	6.9E+02
N-Nitrosodimethylamine <sup>C</sup>	0	--	--	na	3.0E+01	--	--	na	3.0E+01	--	--	--	--	--	--	--	--	--	--	na	3.0E+01
N-Nitrosodiphenylamine <sup>C</sup>	0	--	--	na	6.0E+01	--	--	na	6.0E+01	--	--	--	--	--	--	--	--	--	--	na	6.0E+01
N-Nitrosodi-n-propylamine <sup>C</sup>	0	--	--	na	5.1E+00	--	--	na	5.1E+00	--	--	--	--	--	--	--	--	--	--	na	5.1E+00
Nonylphenol	0	2.8E+01	6.6E+00	--	--	2.8E+01	6.6E+00	na	--	--	--	--	--	--	--	--	--	2.8E+01	6.6E+00	na	--
Parathion	0	6.5E-02	1.3E-02	na	--	6.5E-02	1.3E-02	na	--	--	--	--	--	--	--	--	--	6.5E-02	1.3E-02	na	--
PCB Total <sup>C</sup>	0	--	1.4E-02	na	6.4E-04	--	1.4E-02	na	6.4E-04	--	--	--	--	--	--	--	--	--	1.4E-02	na	6.4E-04
Pentachlorophenol <sup>C</sup>	0	7.7E-03	5.9E-03	na	3.0E+01	7.7E-03	5.9E-03	na	3.0E+01	--	--	--	--	--	--	--	--	7.7E-03	5.9E-03	na	3.0E+01
Phenol	0	--	--	na	8.6E+05	--	--	na	8.6E+05	--	--	--	--	--	--	--	--	--	--	na	8.6E+05
Pyrene	0	--	--	na	4.0E+03	--	--	na	4.0E+03	--	--	--	--	--	--	--	--	--	--	na	4.0E+03
Radionuclides	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Gross Alpha Activity (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Beta and Photon Activity (mrem/yr)	0	--	--	na	4.0E+00	--	--	na	4.0E+00	--	--	--	--	--	--	--	--	--	--	na	4.0E+00
Radium 226 + 228 (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Uranium (ug/l)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	na	4.2E+03	2.0E+01	5.0E+00	na	4.2E+03	--	--	--	--	--	--	--	--	2.0E+01	5.0E+00	na	4.2E+03
Silver	0	1.0E+00	--	na	--	1.0E+00	--	na	--	--	--	--	--	--	--	--	--	1.0E+00	--	na	--
Sulfate	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,1,2,2-Tetrachloroethane <sup>C</sup>	0	--	--	na	4.0E+01	--	--	na	4.0E+01	--	--	--	--	--	--	--	--	--	--	na	4.0E+01
Tetrachloroethylene <sup>C</sup>	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	--	--	na	3.3E+01
Thallium	0	--	--	na	4.7E-01	--	--	na	4.7E-01	--	--	--	--	--	--	--	--	--	--	na	4.7E-01
Toluene	0	--	--	na	6.0E+03	--	--	na	6.0E+03	--	--	--	--	--	--	--	--	--	--	na	6.0E+03
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Toxaphene <sup>C</sup>	0	7.3E-01	2.0E-04	na	2.8E-03	7.3E-01	2.0E-04	na	2.8E-03	--	--	--	--	--	--	--	--	7.3E-01	2.0E-04	na	2.8E-03
Tributyltin	0	4.6E-01	7.2E-02	na	--	4.6E-01	7.2E-02	na	--	--	--	--	--	--	--	--	--	4.6E-01	7.2E-02	na	--
1,2,4-Trichlorobenzene	0	--	--	na	7.0E+01	--	--	na	7.0E+01	--	--	--	--	--	--	--	--	--	--	na	7.0E+01
1,1,2-Trichloroethane <sup>C</sup>	0	--	--	na	1.6E+02	--	--	na	1.6E+02	--	--	--	--	--	--	--	--	--	--	na	1.6E+02
Trichloroethylene <sup>C</sup>	0	--	--	na	3.0E+02	--	--	na	3.0E+02	--	--	--	--	--	--	--	--	--	--	na	3.0E+02
2,4,6-Trichlorophenol <sup>C</sup>	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	--	--	na	2.4E+01
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Vinyl Chloride <sup>C</sup>	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	--	--	na	2.4E+01
Zinc	0	6.5E+01	6.6E+01	na	2.6E+04	6.5E+01	6.6E+01	na	2.6E+04	--	--	--	--	--	--	--	--	6.5E+01	6.6E+01	na	2.6E+04

Notes:

- All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
- Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
- Metals measured as Dissolved, unless specified otherwise
- "C" indicates a carcinogenic parameter
- Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.  
Antidegradation WLAs are based upon a complete mix.
- Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic  
= (0.1(WQC - background conc.) + background conc.) for human health
- WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	6.4E+02
Arsenic	9.0E+01
Barium	na
Cadmium	3.9E-01
Chromium III	2.5E+01
Chromium VI	6.4E+00
Copper	2.8E+00
Iron	na
Lead	3.4E+00
Manganese	na
Mercury	4.6E-01
Nickel	6.8E+00
Selenium	3.0E+00
Silver	4.2E-01
Zinc	2.6E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

9/17/2009 3:15:28 PM

Facility = South Creek - Zion Crossroads

Chemical = Ammonia

Chronic averaging period = 30

WLAa = 8.4

WLAc = 1.2

Q.L. = 0.1

# samples/mo. = 1

# samples/wk. = 1

#### Summary of Statistics:

# observations = 1

Expected Value = 9

Variance = 29.16

C.V. = 0.6

97th percentile daily values = 21.9007

97th percentile 4 day average = 14.9741

97th percentile 30 day average = 10.8544

# < Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity

Maximum Daily Limit = 2.42120411209957

Average Weekly limit = 2.42120411209957

Average Monthly Limit = 2.42120411209957

The data are:

Facility = VA Oil - Zion Crossroads

Chemical = Ammonia

Chronic averaging period = 30

WLAa = 2.2

WLAc = 3.71

Q.L. = 0.2

# samples/mo. = 1

# samples/wk. = 1

#### Summary of Statistics:

# observations = 1

Expected Value = 9

Variance = 29.16

C.V. = 0.6

97th percentile daily values = 21.9007

97th percentile 4 day average = 14.9741

97th percentile 30 day average = 10.8544

# < Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity

Maximum Daily Limit = 2.2

Average Weekly limit = 2.2

Average Monthly Limit = 2.2

The data are:

Evaluation of Conventional Pollutants

The final  $\text{CBOD}_5$ , TKN and D.O. limitations were established by a water quality model which was performed by the permit writer on August 22, 1994. According to the model, the following limits are required to maintain water quality standards in the dry ditch at 0.0395 MGD:

$\text{CBOD}_5 = 15 \text{ mg/l}$   
TKN = 5 mg/l  
D.O. = 5 mg/l

However, there are no actual TKN limit within the permit. The nitrogen monitoring and limitations lie completely within the proposed ammonia limit.

Temperature

No temperature data was available for this facility. The design temperature of  $25^\circ \text{C}$  was assumed.

\*\*\*\*\*  
REGIONAL MODELING SYSTEM      VERSION 3.2  
\*\*\*\*\*

MODEL SIMULATION FOR THE    Virginia Oil - Zion Xroads    DISCHARGE  
TO    Central Branch, U.T.

-----  
THE SIMULATION STARTS AT THE    Virginia Oil - Zion Xroads    DISCHARGE

\*\*\*\*\*      PROPOSED PERMIT LIMITS      \*\*\*\*\*  
LOW =    .0395 MGD      cBOD5 =    15 Mg/L      TKN =    5 Mg/L      D.O. =    5 Mg/L  
\*\*\*    THE MAXIMUM CHLORINE ALLOWABLE IN THE DISCHARGE IS    0.011 Mg/L      \*\*\*\*

-----  
THE SECTION BEING MODELED IS 1 SEGMENT LONG  
RESULTS WILL BE GIVEN AT 0.1 MILE INTERVALS

\*\*\*\*\*      BACKGROUND CONDITIONS      \*\*\*\*\*  
THE 7Q10 STREAM FLOW AT THE DISCHARGE IS    0.00000 MGD  
THE DISSOLVED OXYGEN OF THE STREAM IS    7.386 Mg/L  
THE BACKGROUND cBODu OF THE STREAM IS    5 Mg/L  
THE BACKGROUND nBOD OF THE STREAM IS    0 Mg/L

\*\*\*\*\*      MODEL PARAMETERS      \*\*\*\*\*

SEG.	LEN.	VEL.	K2	K1	KN	BENTHIC	ELEV.	TEMP.	DO-SAT
	Mi	F/S	1/D	1/D	1/D	Mg/L	Ft	°C	Mg/L
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1	1.50	0.352	20.000	1.400	0.450	0.000	440.00	25.00	8.207

The K Rates shown are at 20°C ... the model corrects them for temperature.)



TOTAL STREAMFLOW = 0.0395 MGD  
(Including Discharge)

DISTANCE FROM HEAD OF SEGMENT (MI.)	TOTAL DISTANCE FROM MODEL BEGINNING (MI.)	DISSOLVED OXYGEN (Mg/L)	cBODu (Mg/L)	nBODu (Mg/L)
0.000	0.000	5.000	37.500	8.660
0.100	0.100	5.022	36.371	8.561
0.200	0.200	5.066	35.276	8.464
0.300	0.300	5.124	34.213	8.367
0.400	0.400	5.190	33.183	8.271
0.500	0.500	5.262	32.184	8.177
0.600	0.600	5.336	31.215	8.084
0.700	0.700	5.411	30.275	7.991
0.800	0.800	5.486	29.363	7.900
0.900	0.900	5.561	28.479	7.810
1.000	1.000	5.634	27.622	7.721
1.100	1.100	5.706	26.790	7.633
1.200	1.200	5.776	25.983	7.546
1.300	1.300	5.844	25.201	7.460
1.400	1.400	5.911	24.442	7.375
1.500	1.500	5.975	23.706	7.290

\*\*\*\*\*  
REGIONAL MODELING SYSTEM Ver 3.2 (OWRM - 9/90)  
8-30-1994 09:02:54

ATA FILE = VOL.MOD

REGIONAL MODELING SYSTEM

VERSION 3.2

DATA FILE SUMMARY

THE NAME OF THE DATA FILE IS: VOL.MOD

THE STREAM NAME IS: Central Branch, U.T.  
THE RIVER BASIN IS: York  
THE SECTION NUMBER IS: 3  
THE CLASSIFICATION IS: III

TANDARDS VIOLATED (Y/N) - N  
TANDARDS APPROPRIATE (Y/N) - Y

ISCHARGE WITHIN 3 MILES (Y/N) - N

THE DISCHARGE BEING MODELED IS: Virginia Oil - Zion Xroads

PROPOSED LIMITS ARE:  
FLOW - .0395 MGD  
BOD5 - 15 MG/L  
TKN - 5 MG/L  
D.O. - 5 MG/L

THE NUMBER OF SEGMENTS TO BE MODELED - 1

Q10 WILL BE CALCULATED BY: DRAINAGE AREA COMPARISON  
THE GAUGE NAME IS: VA #01671500  
GAUGE DRAINAGE AREA - 4.4 SQ.MI.  
GAUGE 7Q10 - 0 MGD  
DRAINAGE AREA AT DISCHARGE - .15 SQ.MI.

STREAM A DRY DITCH AT DISCHARGE (Y/N) - Y  
NUTRIENT DEGRADATION APPLIES (Y/N) - N

LOCATION DESIGN TEMPERATURE - 25 °C

SEGMENT INFORMATION

##### SEGMENT # 1 #####

SEGMENT ENDS BECAUSE: THE MODEL ENDS

SEGMENT LENGTH = 1.5 MI

SEGMENT WIDTH = 1 FT

SEGMENT DEPTH = .24 FT

SEGMENT VELOCITY = .25 FT/SEC

RAINAGE AREA AT SEGMENT START = .15 SQ.MI.

RAINAGE AREA AT SEGMENT END = 1.4 SQ.MI.

LEVATION AT UPSTREAM END = 470 FT

LEVATION AT DOWNSTREAM END = 410 FT

HE CROSS SECTION IS: IRREGULAR

HE CHANNEL IS: MODERATELY MEANDERING

POOLS AND RIFFLES (Y/N) = N

HE BOTTOM TYPE = GRAVEL

SLUDGE DEPOSITS = NONE

QUATIC PLANTS = NONE

LGAE OBSERVED = NONE

WATER COLORED GREEN (Y/N) = N

\*\*\*\*\*

Public Notice – Environmental Permit

**PURPOSE OF NOTICE:** To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater into a water body in Louisa County, Virginia.

**PUBLIC COMMENT PERIOD:** January 15, 2010 to 5:00 p.m. on February 16, 2010

**PERMIT NAME:** Virginia Pollutant Discharge Elimination System Permit – Wastewater issued by DEQ, under the authority of the State Water Control Board.

**APPLICANT NAME, ADDRESS AND PERMIT NUMBER:** South Creek Investments Incorporated  
1100 Harris Street, Charlottesville, VA 22903  
VA0088706

**NAME AND ADDRESS OF FACILITY:** South Creek – Zion Crossroads Wastewater Treatment Plant  
11445 James Madison Highway, Gordonsville, VA 22942

**PROJECT DESCRIPTION:** South Creek Investments Incorporated has applied for a reissuance of a permit for the private South Creek – Zion Crossroads WWTP. The applicant proposes to release treated sewage wastewaters from commercial establishments at a rate of 0.0395 million gallons per day into a water body. There has been no sludge generated at this facility. The facility proposes to release treated sewage in an unnamed tributary of Central Branch in Louisa County in the York River watershed. A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: pH, cBOD, TSS, DO, Ammonia and *E. coli*.

**HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING:** DEQ accepts comments and requests for public hearing by e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requestor, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. DEQ may hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit.

**CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION:** The public may review the documents at the DEQ-Northern Regional Office by appointment or may request electronic copies of the draft permit and fact sheet.

**Name:** Douglas Frasier  
**Address:** DEQ-Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193  
**Phone:** (703) 583-3873 **E-mail:** Douglas.Frasier@deq.virginia.gov **Fax:** (703) 583-3821

Revised 2/2003

**State “Transmittal Checklist” to Assist in Targeting  
Municipal and Industrial Individual NPDES Draft Permits for Review**

**Part I. State Draft Permit Submission Checklist**

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence.

Facility Name:	South Creek – Zion Crossroads Wastewater Treatment Plant
NPDES Permit Number:	VA0088706
Permit Writer Name:	Douglas Frasier
Date:	5 November 2009

Major ☐

Minor ☒

Industrial ☐

Municipal ☒

**I.A. Draft Permit Package Submittal Includes:**

	Yes	No	N/A
1. Permit Application?	X		
2. Complete Draft Permit (for renewal or first time permit – entire permit, including boilerplate information)?	X		
3. Copy of Public Notice?	X		
4. Complete Fact Sheet?	X		
5. A Priority Pollutant Screening to determine parameters of concern?			X
6. A Reasonable Potential analysis showing calculated WQBELs?	X		
7. Dissolved Oxygen calculations?	X		
8. Whole Effluent Toxicity Test summary and analysis?			X
9. Permit Rating Sheet for new or modified industrial facilities?			X

**I.B. Permit/Facility Characteristics**

	Yes	No	N/A
1. Is this a new, or currently unpermitted facility?		X	
2. Are all permissible outfalls (including combined sewer overflow points, non-process water and storm water) from the facility properly identified and authorized in the permit?	X		
3. Does the fact sheet <b>or</b> permit contain a description of the wastewater treatment process?	X		
4. Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit?		X	
5. Has there been any change in streamflow characteristics since the last permit was developed?		X	
6. Does the permit allow the discharge of new or increased loadings of any pollutants?		X	
7. Does the fact sheet <b>or</b> permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses?	X		
8. Does the facility discharge to a 303(d) listed water? <b>DOWNSTREAM</b>	X		
a. Has a TMDL been developed and approved by EPA for the impaired water?	X		
b. Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit?			X
c. Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water?	X		
9. Have any limits been removed, or are any limits less stringent, than those in the current permit?		X	
10. Does the permit authorize discharges of storm water?		X	

<b>I.B. Permit/Facility Characteristics – cont.</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
11. Has the facility substantially enlarged or altered its operation or substantially increased its flow or production?		X	
12. Are there any production-based, technology-based effluent limits in the permit?	X		
13. Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures?		X	
14. Are any WQBELs based on an interpretation of narrative criteria?	X		
15. Does the permit incorporate any variances or other exceptions to the State's standards or regulations?		X	
16. Does the permit contain a compliance schedule for any limit or condition?		X	
17. Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)?		X	
18. Have impacts from the discharge(s) at downstream potable water supplies been evaluated?	X		
19. Is there any indication that there is significant public interest in the permit action proposed for this facility?	X		
20. Have previous permit, application, and fact sheet been examined?	X		

## Part II. NPDES Draft Permit Checklist

### Region III NPDES Permit Quality Checklist – for POTWs (To be completed and included in the record only for POTWs)

II.A. Permit Cover Page/Administration	Yes	No	N/A
1. Does the fact sheet or permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?	X		
2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)?	X		

II.B. Effluent Limits – General Elements	Yes	No	N/A
1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)?	X		
2. Does the fact sheet discuss whether “antibacksliding” provisions were met for any limits that are less stringent than those in the previous NPDES permit?			X

II.C. Technology-Based Effluent Limits (POTWs)	Yes	No	N/A
1. Does the permit contain numeric limits for <u>ALL</u> of the following: BOD (or alternative, e.g., CBOD, COD, TOC), TSS, and pH?	X		
2. Does the permit require at least 85% removal for BOD (or BOD alternative) and TSS (or 65% for equivalent to secondary) consistent with 40 CFR Part 133?	X		
a. If no, does the record indicate that application of WQBELs, or some other means, results in more stringent requirements than 85% removal or that an exception consistent with 40 CFR 133.103 has been approved?			X
3. Are technology-based permit limits expressed in the appropriate units of measure (e.g., concentration, mass, SU)?	X		
4. Are permit limits for BOD and TSS expressed in terms of both long term (e.g., average monthly) and short term (e.g., average weekly) limits?	X		
5. Are any concentration limitations in the permit less stringent than the secondary treatment requirements (30 mg/l BOD5 and TSS for a 30-day average and 45 mg/l BOD5 and TSS for a 7-day average)?		X	
a. If yes, does the record provide a justification (e.g., waste stabilization pond, trickling filter, etc.) for the alternate limitations?			X

II.D. Water Quality-Based Effluent Limits	Yes	No	N/A
1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality?	X		
2. Does the fact sheet indicate that any WQBELs were derived from a completed and EPA approved TMDL?	X		
3. Does the fact sheet provide effluent characteristics for each outfall?	X		
4. Does the fact sheet document that a “reasonable potential” evaluation was performed?	X		
a. If yes, does the fact sheet indicate that the “reasonable potential” evaluation was performed in accordance with the State’s approved procedures?	X		
b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?			X
c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have “reasonable potential”?	X		
d. Does the fact sheet indicate that the “reasonable potential” and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations)?			X
e. Does the permit contain numeric effluent limits for all pollutants for which “reasonable potential” was determined?	X		

<b>II.D. Water Quality-Based Effluent Limits – cont.</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?	X		
6. For all final WQBELs, are BOTH long-term AND short-term effluent limits established?	X		
7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)?	X		
8. Does the record indicate that an “antidegradation” review was performed in accordance with the State’s approved antidegradation policy?	X		

<b>II.E. Monitoring and Reporting Requirements</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
1. Does the permit require at least annual monitoring for all limited parameters and other monitoring as required by State and Federal regulations?	X		
a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver?			
2. Does the permit identify the physical location where monitoring is to be performed for each outfall?		X	
3. Does the permit require at least annual influent monitoring for BOD (or BOD alternative) and TSS to assess compliance with applicable percent removal requirements?	X		
4. Does the permit require testing for Whole Effluent Toxicity?		X	

<b>II.F. Special Conditions</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
1. Does the permit include appropriate biosolids use/disposal requirements?		X	
2. Does the permit include appropriate storm water program requirements?		X	

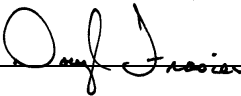
<b>II.F. Special Conditions – cont.</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
3. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?			X
4. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations?	X		
5. Does the permit allow/authorize discharge of sanitary sewage from points other than the POTW outfall(s) or CSO outfalls [i.e., Sanitary Sewer Overflows (SSOs) or treatment plant bypasses]?		X	
6. Does the permit authorize discharges from Combined Sewer Overflows (CSOs)?			X
a. Does the permit require implementation of the “Nine Minimum Controls”?			X
b. Does the permit require development and implementation of a “Long Term Control Plan”?			X
c. Does the permit require monitoring and reporting for CSO events?			X
7. Does the permit include appropriate Pretreatment Program requirements?			X

II.G. Standard Conditions	Yes	No	N/A
1. Does the <b>permit</b> contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions?	X		
<b>List of Standard Conditions – 40 CFR 122.41</b>			
Duty to comply	Property rights	Reporting Requirements	
Duty to reapply	Duty to provide information	Planned change	
Need to halt or reduce activity	Inspections and entry	Anticipated noncompliance	
not a defense	Monitoring and records	Transfers	
Duty to mitigate	Signatory requirement	Monitoring reports	
Proper O & M	Bypass	Compliance schedules	
Permit actions	Upset	24-Hour reporting	
		Other non-compliance	
2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for POTWs regarding notification of new introduction of pollutants and new industrial users [40 CFR 122.42(b)]?	X		



**Part III. Signature Page**

Based on a review of the data and other information submitted by the permit applicant, and the draft permit and other administrative records generated by the Department/Division and/or made available to the Department/Division, the information provided on this checklist is accurate and complete, to the best of my knowledge.

Name	<u>Douglas Frasier</u>
Title	<u>Environmental Specialist II Senior</u>
Signature	<u></u>
Date	<u>5 November 2009</u>